

selecting a weight set from the plurality of weight sets based, at least in part, on the received report signal.

2. (Amended) The method of Claim 1 wherein a first one of said CDMA pilot downlink signals includes a first identifier.

3. (Amended) The method of Claim 2 wherein a second of said CDMA pilot downlink signals includes a second identifier that is different from said first identifier.

4. (Amended) The method of Claim 3 wherein said first and second identifiers identify a first and second BS, said second BS being located from said first BS by a distance sufficient to assure that the CDMA pilot downlink signal transmitted by the first BS and containing either of said first and second identifiers will not interfere with communications between said second BS and said SUs currently communicating with said second BS.

5. (Amended) The method of Claim 3 wherein said first CDMA pilot downlink signal identifies a first BS and wherein said SU also receives a third CDMA pilot downlink signal from a second BS, said SU generating and transmitting one of said report signals to said first BS, said report signal indicating the signal strength of said third CDMA pilot downlink signal and wherein said first BS determines whether to handoff said SU to said second BS based on the signal strengths reported for said first, second, and third CDMA pilot signals.

6. (Amended) The method of Claim 3 wherein said cellular communication conforms to a cellular standard in which each SU automatically monitors each of a plurality of CDMA pilot downlink signals in a set of CDMA pilot downlink signals defined in messages sent by said first BS to said SU, said SU generating one of said report messages when said SU determines that one of said CDMA pilot downlink signals in said set of

CDMA pilot signals has a signal quality that exceeds a threshold value, said report message identifying said CDMA pilot downlink signal.

7. (Amended) The method of Claim 6 wherein said cellular standard is IS-95 and wherein said set of CDMA pilot downlink signals comprises one of said Candidate Set, Neighbor Set, or Remaining Set as defined in that standard.

8. (Not Amended) The method of claim 1, further comprising:  
  
determining whether to hand off the SU to a second BS based, at least in part, on the received report signal.

9. (Not Amended) The method of claim 8, further comprising:  
  
sending an estimate of the weight set to be used after handoff to the second BS.

10. (Amended) An article of manufacture containing a machine-readable medium having stored thereon data representing sequences of instructions which, when executed by a processor, cause the processor to perform operations comprising:

transmitting a plurality of CDMA pilot downlink signals from a BS to a SU, each pilot downlink signal processed with a different weight set from the other pilot downlink signals;

receiving a report signal for at least one of the pilot downlink signals; and

selecting a weight set from the plurality of weight sets based, at least in part, on the received report signal.

11. (Amended) The article of claim 10, wherein a first one of the CDMA pilot downlink signals includes a first identifier.
12. (Amended) The article of claim 11, wherein a second of the CDMA pilot downlink signals includes a second identifier that is different from the first identifier.
13. (Amended) The article of claim 12, wherein the first and second identifiers identify first and second BSs, the second BS being displaced from the first BS by a distance sufficient to assure that the CDMA pilot downlink signal transmitted by the first BS and containing the second identifier will not interfere with communications between the second BS and the SUs currently communicating with the second BS.
14. (Amended) The article of claim 12, wherein the first CDMA pilot downlink signal identifies a first BS and wherein the SU also receives a third CDMA pilot downlink signal from a second BS, the SU generating and transmitting one of the report signals to the first BS, the report signal indicating the signal strength of the third CDMA pilot downlink signal and wherein the first BS determines whether to handoff the SU to the second BS based on the signal strengths reported for the first, second, and third CDMA pilot signals.
15. (Amended) The article of claim 12, wherein the cellular communication conforms to a cellular standard in which each SU automatically monitors each of a plurality of CDMA pilot downlink signals in a set of CDMA pilot downlink signals defined in messages sent by the first BS to the SU, the SU generating one of the report messages when the SU determines that one of the CDMA pilot downlink signals in the set of CDMA pilot signals

has a signal quality that exceeds a threshold value, the report message identifying the CDMA pilot downlink signal.

16. (Amended) The article of claim 15, wherein the cellular standard is IS-95 and wherein the set of CDMA pilot downlink signals comprises one of a Candidate Set, Neighbor Set, or Remaining Set.

17. (Amended) The article of claim 10, having stored thereon data representing sequences of instructions which, when executed by a processor, cause the processor to further perform the operation comprising:

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*B<sup>2</sup>*  
determining whether to hand off the SU to a second BS based, at least in part, on the received report signal.

18. (Amended) The article of claim 17, having stored thereon data representing sequences of instructions which, when executed by a processor, cause the processor to further perform the operation comprising:

sending an estimate of the weight set to be used after handoff to the second BS.

19. (Amended) An apparatus comprising:

receive signal circuitry for connecting with an array of antennae, to receive at least one report signal, the report signal corresponding to at least one CDMA pilot signal ; and

a transmit weight processor, coupled with the receive signal circuitry, to determine a weight set applied to a downlink signal based, at least in part, on the received report signal.

20. (Not Amended) The apparatus of claim 19, further comprising:

transmit circuitry, coupled with the transmit weight processor, to apply the determined weight set to beamform a downlink signal.

B3 21. (Amended) The apparatus of claim 20, wherein the downlink signal is a CDMA pilot signal.

22. (Not Amended) The apparatus of claim 20, wherein the downlink signal is a data signal.

B4 23. (Amended) The apparatus of claim 20, further comprising:  
a pilot signal processor, coupled with the transmit circuitry, to generate a plurality of CDMA pilot signals.

B5 24. (New) A method to determine a communication base station (BS) antennae array weight set corresponding to a subscriber unit (SU), comprising:

transmitting a plurality of pilot downlink signals from the BS to the SU, each pilot downlink signal processed with a different weight set than the other pilot downlink signals, each pilot downlink signal used for at least one of controlling power, handing off between base stations and determining a communication BS antennae array weight set;

receiving a report signal for at least one of the pilot downlink signals; and

determining the weight set corresponding to the SU based on the report signal.

25. (New) The method of Claim 24 wherein a first one of said pilot downlink signals includes a first identifier.
26. (New) The method of Claim 25 wherein a second of said pilot downlink signals includes a second identifier that is different from said first identifier.
27. (New) The method of Claim 26 wherein said first and second identifiers identify a first and second BS, said second BS being located from said first BS by a distance sufficient to assure that the pilot downlink signal transmitted by the first BS and containing either of said first and second identifiers will not interfere with communications between said second BS and said SUs currently communicating with said second BS.
28. (New) The method of Claim 26 wherein said first pilot downlink signal identifies a first BS and wherein said SU also receives a third pilot downlink signal from a second BS, said SU generating and transmitting one of said report signals to said first BS, said report signal indicating the signal strength of said third pilot downlink signal and wherein said first BS determines whether to handoff said SU to said second BS based on the signal strengths reported for said first, second, and third pilot signals.
29. (New) The method of Claim 26 wherein said cellular communication conforms to a cellular standard in which each SU automatically monitors each of a plurality of pilot downlink signals in a set of pilot downlink signals defined in messages sent by said first BS to said SU, said SU generating one of said report messages when said SU determines that one of said pilot downlink signals in said set of pilot signals has a signal quality that exceeds a threshold value, said report message identifying said pilot downlink signal.

30. (New) The method of Claim 29 wherein said cellular standard is IS-95 and wherein said set of pilot downlink signals comprises one of said Candidate Set, Neighbor Set, or Remaining Set as defined in that standard.

31. (New) The method of claim 24, further comprising:  
determining whether to hand off the SU to a second BS based on the report signal.

32. (New) The method of claim 31, further comprising:  
sending an estimate of the weight set to be used after handoff to the second BS.

33. (New) An article of manufacture containing a machine-readable medium having stored thereon data representing sequences of instructions which, when executed by a processor, cause the processor to perform operations comprising:

transmitting a plurality of pilot downlink signals from a BS to a SU, each pilot downlink signal typically used for at least one of power control and base station hand off, each pilot downlink signal processed with a different weight set from the other pilot downlink signals;

receiving a report signal for at least one of the pilot downlink signals; and

determining the weight set corresponding to the SU based on the report signal.

34. (New) The article of claim 33, wherein a first one of the pilot downlink signals includes a first identifier.

35. (New) The article of claim 34, wherein a second of the pilot downlink signals includes a second identifier that is different from the first identifier.

36. (New) The article of claim 35, wherein the first and second identifiers identify a first and second BS, the second BS being located from the first BS by a distance sufficient to assure that the pilot downlink signal transmitted by the first BS and containing either of said first and second identifiers will not interfere with communications between the second BS and the SUs currently communicating with the second BS.

37. (New) The article of claim 35, wherein the first pilot downlink signal identifies a first BS and wherein the SU also receives a third pilot downlink signal from a second BS, the SU generating and transmitting one of the report signals to the first BS, the report signal indicating the signal strength of the third pilot downlink signal and wherein the first BS determines whether to handoff the SU to the second BS based on the signal strengths reported for the first, second, and third pilot signals.

38. (New) The article of claim 35 wherein the cellular communication conforms to a cellular standard in which each SU automatically monitors each of a plurality of pilot downlink signals in a set of pilot downlink signals defined in messages sent by the first BS to the SU, the SU generating one of the report messages when the SU determines that one of the pilot downlink signals in the set of pilot signals has a signal quality that exceeds a threshold value, the report message identifying the pilot downlink signal.



39. (New) The article of claim 38, wherein the cellular standard is IS-95 and wherein the set of pilot downlink signals comprises one of the Candidate Set, Neighbor Set, or Remaining Set as defined in that standard.

40. (New) The article of claim 33, further comprising instructions which, when executed by a processor, cause the processor to further perform the operation comprising:

determining whether to hand off the SU to a second BS based on the report signal.

41. (New) The article of claim 40 further comprising instructions which, when executed by a processor, cause the processor to further perform the operation comprising:

sending an estimate of the weight set to be used after handoff to the second BS.

42. (New) An apparatus comprising

receive signal circuitry for connecting with an array of antennae, the receive signal circuitry to receive at least one report signal, the report signal corresponding to at least one pilot signal, the pilot signal used for at least one of controlling power, handing off between base stations and determining a communication BS antennae array weight set;

a transmit weight processor, coupled with the receive signal circuitry, for determining a weight set applied to a downlink signal, the weight set determined by the at least one report signal;

43. (New) The apparatus of claim 42, further comprising:

transmit circuitry, coupled with the transmit weight processor, the transmit circuitry applying the weight set to beamform a downlink signal.

44. (New) The apparatus of claim 43, wherein the downlink signal is a pilot signal.

45. (New) The apparatus of claim 43, wherein the downlink signal is a data signal.

46. (New) The apparatus of claim 43, further comprising:

a pilot signal processor, coupled with the transmit circuitry, to generate a plurality of pilot signals.

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